ELECTRICITY SUBSIDY FOR RURAL BPL FAMILIES
A STUDY OF AGRA DISTRICT IN UTTAR PRADESH

A

SYNOPSIS

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I. INTRODUCTION

A. Electricity in India- An Overview

Electricity has become the lifeblood of the modern world, without which the world will come to a virtual standstill. Any sluggishness in the growth of the power sector can throw the region far behind other regions in industrial, economic and social growth. Thus, power has been recognized as one of the key factors of infrastructure for a sustained growth of the state economy. Electricity is a primary input factor for the progress of the economy of the state. Full utilization of other input factors, such as manpower, land including irrigation and capital-related resources heavily depends upon the uninterrupted availability of electricity. Electricity has therefore, become the most essential factor in improving the social conditions and welfare of people. Electricity is a concurrent subject in India i.e. both the central and state governments are responsible for the development of the electricity sector.

The Electricity Act, 2003 consolidates laws relating to regulation of generation, transmission, distribution, trading and use of electricity and generally for taking measures conducive to development of electricity industry, promoting competition , guarding interest of consumers and supply of electricity to all areas, rationalization of electricity tariff, promotion of efficiency and environmental benign policies. The Electricity Act, 2003 also encourages the participation of the private sector in generation, transmission, distribution and trading of electricity.

Electric power and its easy availability is an established benchmark of development and an essential prerequisite for all-round prosperity. No major economic activity can be sustained without adequate and reliable source of power. In view of the fact that the conventional sources of power are fast depleting and pose a threat of environment pollution too, the challenge before the State Government is not only to meet the ever growing demand for power but also to progressively increase the share of renewable sources in the power-mix so as to achieve overall energy security.

Table No 1: Detail of Electricity In India	
Electricity coverage	81% (2013)
Installed capacity (28 Feb. 2017)	315.42 GW
Share of fossil energy	68.2%
Share of renewable energy	30.0%
GHG emissions from electricity generation (2014)	2019.67 MtCO2
Average electricity use (2015-16)	1,075 kWh per capita
Transmission & Distribution losses (2014-15)	22.77%
Residential consumption (% of total, 2015-16)	22.97%
Industrial consumption (% of total, 2015-16)	44.20%
Agriculture consumption (% of total, 2015-16)	18.17%
Commercial consumption (% of total, 2015-16)	8.05%
Traction consumption (% of total, 2015-16)	1.63%
Services	
Share of private sector in generation	42% (December 2016)
Institutions	
Responsibility for policy-setting	Ministry of Power
Responsibility for renewable energy	Ministry of New and Renewable Energy
Responsibility for the environment	Ministry of Environment, Forest and Climate Change
Electricity sector law	Electricity Act, 2003

Source- www.wikipedia.org/electricity_sector_india

Table No. 2: Growth of Electricity Consumption in India

Fiscal year ending on	Consum. (GWh)	In Percentage						Per-Capita Consumption (in kWh)
		Domestic	Commercial	Industrial	Traction	Agriculture	Misc.	
31-Dec-1947	4,182	10.11	4.26	70.78	6.62	2.99	5.24	16.3
31-Dec-1950	5,610	9.36	5.51	72.32	5.49	2.89	4.44	18.2
31-Mar-1956	10,150	9.20	5.38	74.03	3.99	3.11	4.29	30.9
31-Mar-1961	16,804	8.88	5.05	74.67	2.70	4.96	3.75	45.9
31-Mar-1966	30,455	7.73	5.42	74.19	3.47	6.21	2.97	73.9
31-Mar-1974	55,557	8.36	5.38	68.02	2.76	11.36	4.13	126.2
31-Mar-1979	84,005	9.02	5.15	64.81	2.60	14.32	4.10	171.6
31-Mar-1985	1,24,569	12.45	5.57	59.02	2.31	16.83	3.83	228.7
31-Mar-1990	1,95,098	15.16	4.89	51.45	2.09	22.58	3.83	329.2
31-Mar-1997	3,15,294	17.53	5.56	44.17	2.09	26.65	4.01	464.6
31-Mar-2002	3,74,670	21.27	6.44	42.57	2.16	21.80	5.75	671.9
31-Mar-2007	5,25,672	21.12	7.65	45.89	2.05	18.84	4.45	559.2
31-March-2012	7,85,194	22.00	8.00	45.00	2.00	18.00	5.00	883.6
31-March-2013	8,24,301	22.29	8.83	44.40	1.71	17.89	4.88	914.4
31-March-2014	8,81,562	22.95	8.80	43.17	1.75	18.19	5.14	957.0
31-March-2015	9,38,823	23.53	8.77	42.10	1.79	18.45	5.37	1010.0
31-March-2016	10,01,191	23.86	8.59	42.30	1.66	17.30	6.29	1075.0
31-March-2017	10,66,268	24.32	9.22	40.01	1.61	18.33	6.50	1122.0

Source-www.wikipedia.org

B. Subsidies –A Vital Part of Indian Economy

A subsidy is a form of financial assistance paid to an individual, a business or an economic sector in order to achieve certain policy objectives. A subsidy, often viewed as the converse of a tax, is an instrument of fiscal policy. Derived from the Latin word 'subsidium', a subsidy literally implies coming to assistance from behind. Financial assistance in the form of a subsidy comes from national or local government. Subsidies are one of the most powerful policy tools in the hands of the government in case of all types of economies. In India, as elsewhere, concept of subsidy is being used from decades to achieve a range of economic, social and environmental objectives for the welfare of overall society.

Subsidies play a very important role in any economy .Our country has various resources which are to be gainfully deployed for the benefit of the people of the country. Subsidies are provided to ensure equitable utilization of the resources. Developing nation provides subsidies for improving the living standard of vast majority of population and to ensure that they are not derived of basic amenities of life. Subsidies represent a sizeable item of the centre's non- plan revenue expenditure.

Providing minimum consumption entitlement to the poor by subsidizing the items consumed by them is extremely important for the welfare of the largest section of population. However, the benefits can be maximized only when the subsidies are transparent, well targeted, and are designed for effective implementation without any leakages.

Subsidies for energy can be generally classified as producer subsidies or consumer subsidies. Producer subsidies are provided to companies to encourage investment and increase output whereas, Consumer subsidies, as the name implies, support the consumption of energy, by lowering prices at which energy products are sold.

Electricity Subsidy

For providing adequate electricity to all in the country by March 2019, the Government of India launched a scheme called "Power for All".

This scheme ensures continuous and uninterrupted electricity supply to all households, industries and commercial establishments by creating and improving necessary infrastructure. It's a joint collaboration of GOI with states to share funding and create overall economic growth. The system for providing electricity subsidies is more complex than that of petroleum products, since policies and tariff rates on electricity differ among states and between consumer categories in each state. Moreover, state governments not only provide subsidies on tariff rates (by providing electricity to consumers at discounted rates), but also grant capital subsidies to the state utilities.

Electricity Subsidy for Rural Electrification

Rural Electrification Corporation Limited (REC) is a public Infrastructure Finance Company in India's power sector. The company finances and promotes rural electrification projects across India. The company offers loans to Central/ State Sector Power Utilities, State Electricity Boards, Rural Electric Cooperatives, NGOs and Private Power Developers. REC is a Navratna Company working under the purview of the Ministry of Power. Business operations in India are supported by a network of 13 Project Offices and 5 Zonal Offices, headquartered in New Delhi.

Different Schemes in India for Rural Electrification

- Kutir Jyoti Program (Launched in 1988-89)
- Pradhan Mantri Gramodaya Yojana (PMGY) (Launched in 2000-01)
- Accelerated Rural Electrification Program (AREP) (Launched in 2002)
- Accelerated Electrification Program AEP: (Launched in 2004)
- Rajeev Gandhi Grameen Vidyutikaran Yojana (RGGVY) (launched on Mar,2005)
- Deendayal Upadhyaya Gram Jyoti Yojana (Launched in Dec,2014)

The ministries of the Government of India have come up with various schemes from time to time. These schemes could be either central, state specific or joint collaboration between the Centre and the states. They are detailed below:

SCHEME	MINISTRY	DATE OF LAUNCH	SECTOR	PROVISIONS
Bachet lamp	Mop	2009	Electrification	Reduce the cost of compact fluorescent lamps
Deen Dayal Upadhyaya Gram Jyoti Yojana	MoP	2015	Rural Power Supply	It is a Government of India program aimed at providing 24x7 uninterrupted power supply to all homes in Rural India
Rajiv Gandhi Grameen Vidyutikaran Yojana	MoP	April 2005	Rural Electrification	Programme for creation of Rural Electricity Infrastructure & Household Electrification for providing access to electricity to rural households
Pradhan Mantri Ujjwala Yojana	MoP&NG	1 May 2016	Energy	Launched to provide free LPG connections to women from below poverty line families.
UJWALA Scheme	Ministry of Power	1 May 2015	Replaced "Bachat Lamp Yojana"	UJALA - Unnat Jyoti by Affordable LEDs for All. Scheme aims at reducing electricity bills of consumers, contribute to the energy security of India and also help in environment protection

Source: www.wikipedia.org

C. Status Of Electrification In Uttar Pradesh

Uttar Pradesh is one of the largest states in the country. From 450 kWh in FY12 to 524 kWh in FY16, its per capita consumption of electricity has been steadily growing. However, the consumption remains well below the national average of about 1,075 kWh (FY16).

Uttar Pradesh is one of the largest BIMARU states. It is also the leading state in India, having highest number of population. **Table no. 3** below shows the population of Uttar Pradesh.

Table No. 3: Population of Uttar Pradesh State and India

Area	2001			2011		
	Rural	Urban	Total	Rural	Urban	Total
Uttar Pradesh	13,16,58,339	3,45,39,582	16,61,97,921	15,53,17,278	4,44,95,063	19,98,12,341
All-India	74,24,90,639	28,61,19,689	1,02,86,10,328	83,34,63,448	37,71,06,125	1,21,05,69,573

Source*:* Census of India, 2001; 2011.

Table no. 4 below, show the status of electricity in Uttar Pradesh .It shows total rural household and houses to be electrified.

Table No. 4: Status of Electrification

Particulars	Status (FY17)
Total rural households	2,89,46,089
Total electrified households as per Discom records	92,72,706
Households with access to electricity and yet to be formalised	84,62,695
Balance to be electrified	**1,12,10,688**
Households to be electrified (already covered in the infrastructure being created in the ongoing schemes)	49,97,696
Balance households to be electrified	**62,12,992**

Source: Report of government of India and government of Uttar Pradesh 2017

Table No. 5: Scope and achievement for projects covered under X, XI and XII plan of DDUGJY scheme (as on 28/02/2017)

Particulars	Scope	Achievement
Electrification of villages (nos.)	29288	29251 (99.8%)
Intensive electrification of villages (nos.)	90811	41988 (46%)
BPL households connections (nos. in lakh)	52.80	20.78 (39.3%)
Financial (Rs crore)	15398	9007 (58%)

Source: Report of government of India and government of Uttar Pradesh 2017

Table No. 6: Status of Rural Electrification in Uttar Pradesh (Status as on 30.09.2017)

I. Village Electrification	**(Nos.)**
a. Total inhabited villages (as per Census 2011)	97813
b. Un-electrified Villages as on 01.04.2015	1529
c. Villages electrified during 2015-16 & 2016-17 -	1467
d. Electrified during 2017-18 (upto30.09.2017) -	07
e. Uninhabited Villages	53
f. Balance Un-electrified villages as on 30.09.2017	02
(02 villages in Kheri district to be electrified though off- gird)	
II. Household Electrification status as reported by State:	**(Nos. in Lakhs)**
a. Total Rural Households	302.33
b. Households electrified -	155.74
c. Balance Rural Households to be electrified as on 30.09.2017 -	146.58

Source: www.ddugjy.gov.in/mis/portal/state_wise_summary1

The State of **Uttar Pradesh** is among the top users of electricity per annum. With the depleting coal reserves and inadequate supply of other fuel, all possible viable options for the generation of the electricity need to be explored. Under these circumstances, the power generation based on renewable energy resources play a significant role in meeting State's future demands for electricity.

Power has been the bane of UP's industry. The Government is slowly but surely inching ahead towards the development of Power sector with the help of private sector through Public Private Partnerships (PPPs), joint ventures, memoranda of understanding. The distribution system in Agra has already been handed over to a private partner M/s Torrent Power Ltd. with effect from 01.04.2010.

II. RESEARCH MOTIVATION

A. Subsidisation has been a trending topic in political and economic point of view. Energy sector is and mainly electricity is something which can be ignored neither by the government nor by the society. Energy sector is heavily subsidised by the government so that it reaches to all. So to study whether they are really fulfilling the social and economic objective and not just the political agenda, this topic was selected as researcher is interested to learn more about the process of subsidisation and various electricity subsidies and how much impact do they have. This study is specially focused on consumption pattern of subsidy for electricity in Uttar Pradesh. This study will focus on rural electrification in Uttar Pradesh and in Agra district particularly. It will be of concern for rural households and BPL families.

B. Does We Really Need Subsidies?

In India, most subsidies are not for the poor but for the rich. Despite of the continuously rising food subsidies, hunger and malnutrition still prevails in the entire county. Due to defective government practices, people who are in the real need of subsidies- even for their survival are being forced out of the system. Some measures for effective consumption of subsidies can be:

1. The emphasis should be on physical achievements and not on financial disbursements.
2. The effects of subsidies should be monitorable and measurable in terms of quality or quantity.
3. Subsidies should be properly targeted, i.e. benefit should go to the really deserving.
4. Timing of subsidies should be made proper.

C. Following are some reasons to study about subsidies in Uttar Pradesh.

- To determine whether subsidy policy is serving public, rather than a private interest
- To know whether it is achieving its intended objective efficiently
- Does it have any negative, unintended consequences, such as corruption or environmental degradation
- Do we really need subsidies and if yes then how can they be effectively used for the welfare of the people.
- Are subsidies a burden on the Indian economy? Do we need to re- target the subsidies?
- Misuse of subsidies for political purpose is known worldwide.
- Do Subsidies make the beneficiaries lethargic?

III. REVIEW OF LITERATURE

For knowing the present state of knowledge and research work, the researcher reviewed the following**:**

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
1.	2017	**Supporting Rural Electrification in Developing Countries**	Lip Sandwell, Scot Wheeler	Imperial College London	To study the profile of developing countries.	Shows country profile and the electricity structure.
2.	2016	**Energy Consumption in India- Recent Trends**	Renjish Kumar V K, Dr. Vimala M	Asia Pacific Journal of Research Vol: I. Issue XXXVI, February 2016 ISSN: 2320-5504, E-ISSN-2347-4793	To study the consumption pattern of energy sector and analyse the Indian economy.	In 2035, the primary energy demand in the world is expected to grow at an average annual growth rate of 1.5 per cent while that for Asia is expected to be 2.5 per cent. The energy intensity of India is over twice that of the matured economies, which are represented by the OECD and Asian countries.
3.	2016	**India's Energy and Climate Policy Can India Meet the Challenge of Industrialization and Climate Change?**	Charles K. Ebinger	Policy Brief 16-01	This paper pays a great deal of attention to the Indian power sector where past policies have led to 11 such a deterioration, especially in the transmission and distribution networks	The paper examines the institutional, social and economic bottlenecks plaguing the entire energy sector from inadequate billings and collection systems, bribery of meter readers in various forms, rival bureaucracies at the state and federal levels, power theft, lack of market-based pricing and non- payment of bills by wealthy industrialists, agricultural landlords,

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
						government agencies and the military that will hinder meaningful reform throughout the energy economy.
4.	2015	**Impacts of Energy Subsidy in Bangladesh: An Analysis**	Dipika Deb Dipal, Kamrul Abedin, Mohammad Maniruzzaman Khan, Md. Mymul Hasan	ABC Journal of Advanced Research, Volume 4, No 1 (2015) ISSN 2304-2621(p); 2312-203X (e)	The objectives of the study were - • To identify the impact of energy subsidy in economic, social and environment aspect; • To describe the crucial factors (causes) of energy subsidy in Bangladesh and • To describe the present energy structure in Bangladesh	• The government is spending more than 4 per cent of GDP on energy subsidies more than which is higher than it spending on health and social welfare programs. • Proper pricing of primary fuel and energy is crucial to conserve energy and to attract domestic and foreign private investments in the energy sector.
5.	2015	**Impact of Subsidy on Agriculture Sector in India- An Analytical Study**	Harshal Anil Salunkhe1 & B. Deshmush	International Journal of Agricultural Science and Research (IJASR)ISSN(P): 2250-0057; ISSN(E): 2321-0087 Vol. 4, Issue 2, Apr 2014, 9-16	• To study about factors measure & contribution to growth of agriculture sector. e.g. Finance, Production, Infrastructure, Irrigation & Technology etc.	• In last few year percentage of agriculture sector in GDP is decrease but at same time production of agriculture sector is also increasing with investment. • The increase in population & inflation is measure factor for low contribution of agriculture sector in India GDP. • Without help of subsidies development of agriculture sector is very difficult.

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
						• Due to corruption & ineffective management of subsidies in India, it has not reach to end users i.e. farmers & another side due to illiteracy of farmer regarding agriculture subsidies, he can't take benefit in farming & faced financial crisis.
6.	2015	**Rationalising Fertiliser Subsidy in India: Key Issues and Policy Options**	Ashok Gulati Pritha Banerjee	Indian Council For Research On International Economic Relations Working Paper 307		This paper suggests the following alternative policy options: • Switch to direct cash transfers to farmers, free up the urea sector with imports at zero duty, and let domestic prices be determined by demand and supply forces in open markets; • Encourage Indian investments in nitrogenous fertilisers in Gulf countries where gas prices are typically less with some medium to long-term agreements for imports.
7.	2014	**Petroleum Subsidies and Macroeconomic Variables in India**	Chittaranjan Nayak and Jasoda Jena	Journal of Economics and Sustainable Development ISSN 2222-1700 (Paper) ISSN 2222-2855 Vol.5, No.3, 2014	The objectives of the present study were: • To examine the trend and pattern of subsidies in petroleum sector other subsidies in India, and	From a comparison with other components of gross subsidy, the study observes that it is not petroleum subsidy but food and fertilizer subsidies have grown at a sharper rate.

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
					• To investigate the dynamic relationship among petroleum subsidies, prices, fiscal balance, economic growth, interest rate and investment in the economy.	
8.	2014	**Impacts of residential electricity subsidy reform in China**	Xiaolei Wang & Boqiang Lin	Energy Efficiency (2017) 10:499–511 DOI 10.1007/s12053-016-9466-3	Electricity price in China is generally controlled at a low level by the government, leading to a substantial electricity subsidy. Electricity subsidy is the focus of energy price reform.	Paper adopts the price-gap approach to estimate the scale of electricity subsidy and finds that in 2010, residential electricity subsidy in China amounted to 467.17 billion CNY (Chinese yuan), accounting for 1.17 % of GDP in that year. Subsequently, the paper estimates the impacts of residential electricity subsidy reform on the welfare of residents using the compensating variation (CV) measurement. The results show that if residential electricity price rises by 50, 100, 150, and 191 %, the CV should be 288.5, 394.2, 451.1, and 467.2 billion CNY, respectively. The residential electricity subsidy reform also has a moderating role in the rebound effect of electricity consumption.

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
9.	2013	**An Economic Assessment Of Structure And Dynamics-Of Fertilizer Subsidy In India**	A. P. Pandey Gaurav Kumar Tripathi	Journal of Economic & Social Development, Vol - IX, No. 2, Dec., 2013 ISSN 0973 - 886X	The objective of this paper is to present the structure of Fertilizer subsidy in Indian agriculture and analyses the related issues in the emerging scenario.	Present paper analyses the fertilizer subsidy from two different aspects, both important for policy planners in the country, who is benefiting from the current system of fertilizer subsidies and secondly what is the impact of recent policy changes on fertilizer consumption and prices and proposed removal of fertilizer subsidies on farm income. Direct transfer of subsidies has the potential to help the poor access basic goods by reducing demand constraints.
10.	2013	**Effects Of Reduction In Subsidy On Domestic LPG Cylinders**	Gaurav Lodha and Amit Vyas	ISSN 2319-345X Vol. 2, No. 1, January 2013 Int. J. Mgmt Res. & Bus. Strat. 2013		Subsidies have multiple effects on govt. budget. The first & easiest way to identify is the impact on the fiscal balances of country's budget.
11.	2013	**The Fiscal and Welfare Impacts of Reforming Fuel Subsidies in India**	Rahul Anand, David Coady, Adil Mohommad, Vimal Thakoor, and James P. Walsh	International Monetary Fund WP/13/128 IMF Working Paper Asia and Pacific Department		• This paper evaluates the fiscal and welfare implications of fuel subsidy reform in India. • Fuel subsidies are found to be badly targeted, with the richest 10% of households receiving seven times more in benefits than the poorest 10%. • Better targeting of fuel subsidies would fully protect lower income households

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
						while still generating substantial net fiscal savings.
12.	2012	**Agricultural Subsidies in India Boon or Curse**	Rajwinder Kaur , Dr.Manisha Sharma	IOSR Journal of Humanities and Social Science (JHSS) ISSN: 2279-0837, ISBN: 2279-0845. Volume 2, Issue 4 (Sep-Oct. 2012), PP 40-46		Subsidies are often criticized for their financial burden; on the other hand there is a fear that agriculture production and income of farmers would decline if subsidies are curtailed.
13.	2012	**Economic Impacts of Subsidy Rationalization Malaysia**	Zakariah Abdul Rashid Khalid Abdul Hamid	Malaysian Institute of Economic Research (MIER)	This paper examines Malaysia's energy subsidy experience, in terms of the direct and indirect effects of subsidy distribution and reallocation, and considers whether the rationale for subsidy policy in the case of energy has been justified.	This study employs Leontief's and a computable general equilibrium (CGE) model based on national and social accounts of the Malaysian economy, disaggregating and constructing a hybrid energy I-O matrix and partitioning the I-O table into energy and non-energy blocks. The modelling informs energy pricing, the domains of government intervention in energy markets, and the international experience in mitigating the negative impact of energy pricing reform.

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
14.	2012	**Toward a More Efficient and Innovative Electricity Sector in Russia**	Douglas Cooke, Alexander Antonyuk and Isabel Murray	International Energy Agency 9 rue de la Fédération 75739 Paris Cedex 15, France www.iea.org		Transparent and objective system operation is needed to deliver efficient dispatch and network operation that supports competitive and efficient wholesale market outcomes.
15.	2011	**Electricity subsidies for agriculture: Evaluating the impact and persistence of these subsidies in India**	Reena Badiani Katrina K. Jessoe			This paper develops and empirically tests a model that describes the channels through which these subsidies should impact agricultural productivity. To isolate the impact of electricity prices on groundwater extraction and agricultural revenues, we exploit year-to-year variation in state electricity prices across districts that differ in hydrogeological characteristics.
16.	2011	**Rethinking Electricity Tariffs and Subsidies in Pakistan**	Chris Trimble Nobuo Yoshida Mohammad Saqib	World Bank Report Number: 62971-PK	• Importance of proper implementation of the fuel price adjustment policy, • To move tariff rates further toward the cost-recovery level, along with revisions on tariff structure.	This paper focuses on electricity consumed by residential households, the most significant sector for electricity consumption in Pakistan. Residential consumption accounted for almost 50 percent of electricity consumption in FY10

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
17.	2010	**Reform of the Fiscal and Subsidy Regime for the Petroleum Sector**	Sebastian Morris Jayanth Varma Samir K. Barua	IIMA, India W.P. No. 2010-03-03		The social losses include, misuse / wasteful use of scarce petroleum resources, diversion, adulteration, other avoidable negative externalities, improper substitution between products, tax arbitrage, distortion of consumer preferences and input choices of industries, and international cross hauling of petroleum.
18.	2007	**Agricultural subsidy Reform And Its Implications For Sustainable Development: The New Zealand Experience**	Vangelis Vitalis	ISSN: 1569-3430 1744-4225 Environmental Sciences March 2007; 4(1): 21 – 40	Drawing on a 'three pillar' (economic, environment and social) paradigm of sustainable development	The New Zealand experience has confirmed that the removal of agricultural subsidies is a critical step towards sustainability, but specific environmental policies designed in the context of social and economic policies.
19.	2006	**Efficient Subsidisation Of LPG- A Study Of Possible Options In India**	Ajay Pandey and Sebastian Morris	Report commissioned by petroleum federation of India WP no.-2006-04-0		
20.	2005	**Improving Electricity Services in Rural India**	Vijay Modi	CGSD Working Paper No. 30 December 2005	This report examines the status of the rural electricity sector and provides recommendations on possible reforms in India with a focus two states:	The current state of electricity services across India can be said to be acute, if not in a crisis mode, impeding both economic and social development. The immediate manifestations of this crisis are severe shortcomings in: access to electricity for rural and urban poor, shortfall in generation

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
					Uttar Pradesh and Madhya Pradesh.	capacity and poor reliability of supply.
21.	2005	**Energy in China: Development and Prospects**	Pun-Lee Lam	chinaperspectives.revues.org/2783 ISSN : 1996-4617		The energy sector plays an important role in the economy, both in terms of employment and industrial output. Despite the remarkable growth of the energy sector, the balance between energy supply and demand is achieved at a very low level of per capita consumption; and the country remains starved for energy. In 2003 and 2004, China experienced an acute shortage of energy which severely disrupted the industrial output of the country.
22.	2003	**The Economic and Environmental Impacts of Agricultural Subsidies: An Assessment of the 2002 US Farm Bill and Doha Round**	Karel Mayrand Stéphanie Dionne Marc Paquin Isaak Pageot-LeBel	UNISFERA, International Centre: Prepared for The Second North American Symposia upon Assessing the Environmental Effects of Trade Commission for Environmental Cooperation	• The purpose of this study is to assess the environmental impacts of agricultural subsidies, using Wheat as an example.	Higher subsidies such as provided for in the 2002 US Farm Bill lead to an intensification of agricultural production in OECD countries which can generally be considered detrimental to the environment in terms of exposure to pesticides and fertilizers, habitat destruction and land degradation.

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
23.	2002	**Cross Subsidies In Russian Electric Power Tariffs Not As Bad As Their Reputation**	Franz Hubert			In most industrialized countries electric power tariffs for residential consumption are higher than for industrial customers. In Russia, as in some other transition countries, this pattern is reversed, but at the same time the overall level of tariffs is very low. Cross subsidization of residential tariffs through industrial tariffs has been repeatedly criticized by economists and international organizations
24.	2015	**Low Oil Prices**: **An Opportunity For Fuel Subsidy Reform**	Keith Benes Andrew Cheon Johannes Urpelainen Joonseok Yang	Columbia SIPA Centre on global energy	This paper explains the benefits of fuel subsidy removal and how low oil prices can enable action.	The main barriers to fuel subsidy reform are generally political.
25.		**Agricultural Subsidies and Environmental Change**	John Lingard			• Subsidy reform is now a central plank of the environmental policy and international trade agenda. • It is unclear whether the continued subsidy reduction and opening up of markets presents opportunities or threats to farmers in economically marginal, but ecologically valuable land, and what the impact on

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
						natural resource management might be.
26.		**The Impact of Electricity Subsidies on Groundwater Extraction and Agricultural Production**	Reena Badianiy Katrina Jessoe			• In this paper, the environmental and agricultural effects of agricultural electricity subsidies in India were estimated. • Electricity subsidies increase groundwater extraction, where the estimated elasticity is -0.13, and the production of water intensive crops.
27.		**Reforming Energy Subsidies Opportunities to Contribute to the Climate Change Agenda**	UNEP REPORT	ISBN: 978-92-807-2944-3		This report summarises, in a nontechnical language, the nature, types and impacts of subsidies on energy that undermine the pursuit of sustainable development. It also offers recommendations to policy makers on how to design and implement subsidies reform in an environmentally, socially and economically sound manner.
28.	2010	**Reducing Energy Subsidies in China, India and Russia: Dilemmas for Decision Makers**	Grant Dansie , Marc Lanteigne and Indra Overland	sustainability ISSN 2071-1050 www.mdpi.com/journal/sustainability	This article examines and compares efforts to reduce energy subsidies in China, India and Russia.	Non-democratic governments and energy importers might be expected to be more likely to halt subsidies. In fact, the degree of democracy and status as net energy exporters or importers does not seem to significantly affect these countries' capacity to

S.NO	YEAR	TITLE	AUTHORS	PUBLICATION DETAILS	OBJECTIVE	FINDINGS
						reduce subsidies, as far as can be judged from the data. Politicians in all three fear that taking unpopular decisions may provoke social unrest.
29.	2015	**China's Growing Energy Demand: Implications for the United States**	Terry Dinan Andrew Stocking	Working Paper 2015-05	Paper examines trends in China's energy consumption, the implications of those trends for U.S. households and businesses, and policy options that might help minimize adverse effects.	China's demand for energy has nearly doubled since 2005—making China the world's largest consumer of energy. That growth and the energy policies that China pursues increase the level and possibly the volatility of some energy prices, reduce the competitiveness of U.S. manufacturing firms in relation to Chinese firms but provide benefits for U.S. consumers, and increase greenhouse gas emissions.
30.	2014	**Economic Impact of Energy Subsidy and Subsidy Reform Measures: New Evidence from Jordan**	Khalil Elian Abdelrahim		The objectives of the study are to shed light on the characteristics, policies and system of energy subsidy in Jordan; to identify the economic impact and the reform measures of the energy subsidy	The study concludes that although the energy subsidy has a positive social impact on the poor, it has unfortunately negative impacts on governmental budget, distorted the energy pricing mechanism and led to inefficient utilization of the scarce economic and financial resources.

IV. GAPS AND NEED OF THE STUDY

Forming a large part of government expenditure in India, subsidies have a tremendous impact on the lives of citizens. India has historically subsidized energy with the objective of protecting its consumers from international price volatility and providing energy access for its residents, especially the poor. However, energy subsidies play a heavy burden on government budgets, while often failing to reach their targeted beneficiaries. But, one needs to look into the positive effects of subsidies which are far more than the negative effects. Hence, subsidies are sometimes termed as sweet poison.

The major question in front of the policy- makers and economists these days is that do we really need subsidies? If yes, how can we rationalize it?

The other view is that of the Finance Minister. In his opinion, what is missing is a proper delivery system to ensure that the subsidy reaches the beneficiaries directly. It is true that subsidies are a burden currently. It is also true that a significant number of people in the country are poor and therefore need help. This means that it needs to get on with the policy reforms. And the desired result is one we all want - India to shine in the long term.

There is a need to understand the process of electricity subsidies given by the government especially for rural development and of BPL families. Uttar Pradesh is one of the most populous countries having more than 30 lakh rural household. District Agra ranks 11th in terms of population in the state. There are only 36 uninhabited villages out of total 929 villages in the district. **Therefore there is an emerging need to understand and analyse electricity subsidy over the period of time in rural sector in Agra district of Uttar Pradesh and know the impact of subsidy on rural development.**

V. OBJECTIVES OF THE STUDY

Objectives of the study are as follows:

- To study the volume and composition of subsidies provided by Uttar Pradesh government for energy sector.
- To study the causes and pattern of electricity subsidy in Uttar Pradesh in general and BPL families specifically**.**
- To find out the economic and social changes of BPL families after subsidy.
- To compare the subsidy pattern of UP government for rural electricity with other states of India.
- To prepare a plan to rationalize the present electricity subsidy for rural Uttar Pradesh.

VI. HYPOTHESES

- **H_{o1}**: Electricity subsidy for rural electrification and rural development are independent to each other.
- **H_{o2}**: There is no significant impact of electricity subsidy on economic development of BPL families of rural India.
- **H_{O3}**: There is no significant impact of electricity subsidy on social development of BPL families of rural India.
- **H_{O4}:** There is no significant difference of rural electrification subsidy in UP and other states.

VII. RESEARCH DESIGN AND METHODOLOGY

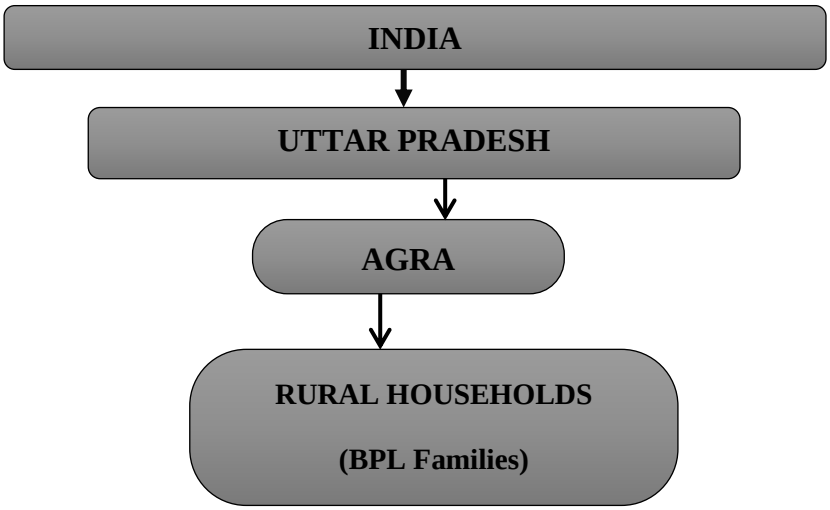
A. Scope of Study

- In this study the impact of electricity subsidy over economic and social development of rural BPL families are to be studied.
- This study will be carried out in Agra District of UP.
- Period of study will be from 2001 to 2018

B. Sample Design and Size

The researcher will follow multi-stage random sampling technique for the selection of the sample.

Figure 1: Sampling Design Process



The above figure illustrates the process of sample collection.

Universe and Sample Size

Table no. 7 gives the details of households of Agra district- block wise and village wise which is the universe of the study.

Table No 7; Number of household in Agra District

	Tehsils	Total Rural Pop	Block	Total Vill	No. of HH	Name of Vill	HH in Village	BPL Families	%BPL families of total HH in village
AGRA DISTRICT	Agra	347502	Bichpuri	33	17052	Barara	1903	145	7.62
			Barauli Ahir	**69**	**37120**	**Kundol**	**1736**	**272**	**15.67**
	Bah	395603	**Bah**	**82**	**23900**	**Vijoli**	**2315**	**308**	**13.31**
			Jaitpur Kalan	79	20484	Jaitpur Kalan	1799	163	9.06
			Pinahat	53	19011	Vipraoli	1940	200	10.31
	Etmadpur	336919	Khandauli	48	28039	Saimara	2921	361	12.36
			Etmadpur	**62**	**26334**	**Barhan**	**2798**	**363**	**12.97**
	Fatehabad	404170	**Shamsabad**	**70**	**30470**	**Kolara Kalan**	**1340**	**423**	**31.57**
			Fatehabad	96	30682	Dhimsiri	1873	142	7.58
	Kheragarh	433764	Jagner	52	17378	Sarendhi	1436	161	11.22
			Kheragarh	**48**	**23753**	**Kagarol**	**2054**	**229**	**11.15**
			Saiyan	54	23250	Saiyan	1733	153	8.83
	Kiraoli	476644	Akola	40	20530	Akola	1751	83	4.74
			Fatehpur Sikri	79	25456	Sikri Hissa Iv	1372	65	4.74
			Achnera	**64**	**28332**	**Raybha**	**2425**	**276**	**11.38**
	Total	**2394602**		**929**	**371791**		**29396**		

Source: :www.censusindia.gov.in & www.agra.nic.in

Sample size

For the validity of data and results there is a need for an efficient method of determining an appropriate sample size which is to be representative of given population

Table No 8: Sample Size of Study

	Tehsils	Block	Name of Vill	HH in Village	BPL Families	20% of total BPL Families	Sample size
AGRA DISTRICT	**Agra**	Barauli Ahir	Kundol	1736	272	55	**376**
	Bah	Bah	Vijoli	2315	308	62	
	Etmadpur	Etmadpur	Barhan	2798	363	73	
	Fatehabad	Shamshabad	Kolara Kalan	1340	423	85	
	Kheragarh	Kheragarh	Kagarol	2054	229	46	
	Kiroli	Achnera	Raybha	2425	276	55	
			Total	**13324**	**1871**		

According to Krejcie and Morgan, in the present study the sample size shall be 376, which is almost 20% of total rural BPL families in different villages of Agra District. Therefore 20% of BPL families of each selected village from each tehsil of Agra district will be our sample size.

C. Collection of Data

- **Primary Data:** Data will be collected through questionnaire/ schedules structured for rural BPL families and in addition to it, direct interviews from officials of power authorities and electricity department, in Agra (DVVNL).
- **Secondary Data:** Data will be collected with the help of research papers, newspapers, articles, published reports of planning commission, World Bank reports, finance ministry reports, Uttar Pradesh power corporation (UPPCL) reports, UPERC, REC (Rural Electrification Corporation) and ministry of power reports.

Methodology-

Following methodology is adopted for the proposed study:

S.NO.	Objectives	Data collection	Analysis Tool
1	To study the volume and composition of subsidies provided by Uttar Pradesh government for energy sector.	Data will be collected through secondary sources from government reports, reports of different ministries, World Bank reports, finance ministry reports, Uttar Pradesh power corporation (UPPCL) reports.	Time Series Analysis
2	To study the causes and pattern of electricity subsidy in Uttar Pradesh in general and BPL families specifically**.**	Data will be collected through secondary and primary sources by using survey method.	• Causes will be ranked. • Pattern to be studied from suitable technique of time series analysis. • Criteria of subsidy will also be ranked.
3	To find out the economic and social changes of BPL families after subsidy	Data will be collected through questionnaires/schedules and interviews which will be framed and structured for BPL families.	Social and economic Impact of subsidies will be studied on BPL families. ANOVA and suitable regression model will be used.
4	To compare the subsidy pattern of UP government for rural electricity with other states of India.	This would be done after analysis and results with help of both primary and secondary data sources.	Different models used in earlier studies will be studied and a statistically fit model (Simultaneous Equation Model (SEM)) may be developed.
5	To prepare a plan to rationalize the present electricity subsidy for rural Uttar Pradesh.	This would be done after analysis and results with help of both secondary and primary data sources.	As per the suitable statistical model, suggestions will be provided.

The study will be comprised of 376 respondents. Descriptive statistics will be presented through tables and charts. Assumptions of parametric testing would also be presented. Significant differences and relationships between the variables will be assessed using techniques such as statistical tests, ANOVA, correlation, SEM and regression. Qualitative data will be analysed via thematic and content analysis. For analysis statistical package for social sciences (SPSS-21) will be used to analyse the data.

IX. PROPOSED STRUCTURE OF THE STUDY

The study includes sections as follows:

Chapter: - 1 Introduction- Energy sector and subsidies to it.

Chapter: - 2 Framework of Previous Studies and layout of the study.

Chapter: - 3 Profile of Selected Area and Respondents.

Chapter: - 4 Analysis and Testing of Hypotheses

Chapter: - 5 Findings

Chapter: - 6 Conclusions & Suggestions

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